Geoffrey L. Harrison, admitted *Pro Hac Vice*
Susman Godfrey LLP
1000 Louisiana Street, Suite 5100
Houston, Texas 77002
Telephone: (713) 653-7807; Fax: (713) 654-6666
Email: gharrison@susmangodfrey.com
Attorney-in-Charge for KBR Defendants

Jeffrey S. Eden, OSB #851903
Schwabe, Williamson & Wyatt, P.C.
Pacwest Center
1211 SW 5th Ave., Suite 1900
Portland, Oregon 97204
Telephone: (503) 222-9981; Fax: (503) 796-2900
Local Counsel for KBR Defendants

IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF OREGON

PORTLAND DIVISION

ROCKY BIXBY, et al,

Plaintiffs,

vs.

KBR INC., et al.,

Defendants.

Civil No. 3:09-cv-632-PK

Memorandum in Support of KBR's Motion to Exclude Dr. Arch Carson's Testimony re Causation

ORAL ARGUMENT REQUESTED

Table of Contents

Table of Authorities

Cases

Under *Daubert v. Merrell Dow Pharms, Inc.*, 113 S. Ct. 2786 (1993), this court should exclude the unreliable opinion testimony of plaintiffs' expert Dr. Arch Carson on the issue of causation. Carson is plaintiffs' only medical expert and is plaintiffs' only expert who even attempts to offer an opinion about specific causation. This *Daubert* motion addresses the inadmissibility of Carson's causation opinions. KBR also has filed a separate *Daubert* motion that specifically addresses the inadmissibility of Carson's opinions about "genetic transformation injury," "remote exposure injury," and "medical monitoring."

Carson's shifting opinions are based on a cursory and haphazard review of medical records, ignoring plaintiffs' deposition testimony, ignoring plaintiffs' years-earlier pre-litigation statements to the U.S. Army's medical group ("CHPPM"), and avoiding any reliable analysis of each plaintiff's exposure dose. Carson's causation opinion is based on nothing more than his own *ipse dixit*. He has *not* analyzed any plaintiff's relative risk, has *not* conducted a meaningful differential diagnosis (and admits there's no way to tell what he did from reading his reports), and has *not* differentiated among plaintiffs. For these reasons, as well as the reasons discussed with respect to the pending Motion for Summary Judgment re Causation, Carson's opinions should be excluded and summary judgment granted against all plaintiffs. *See Lust v. Merrell Dow Pharms., Inc.*, 89 F.3d 594, 598 (9th Cir. 1998) (holding that "it is the proponent of the expert who has the burden of proving admissibility").

Part I of this memorandum discusses Carson's failure to follow a scientific and reliable approach to addressing causation, including his many failures to do legally necessary work. Part II discusses Carson's failure to satisfy the Ninth Circuit's clear legal requirements for admissibility under *Daubert*.

I.

Carson Does Not Have Legally Sufficient Facts to Opine on Causation And He Ignores the Facts that He Doesn't Like

One purpose of *Daubert* is "to ensure that an expert's testimony rests upon a reliable foundation." *Guillory v. Domtar Indus., Inc.*, 95 F.3d 1320, 1330-31 (5th Cir. 1996). Carson has not built his causation opinion on a reliable foundation.

A. Carson Did Not Calculate Dose.

Carson admits that he has not done any quantitative analysis of any plaintiff's dose of exposure to hexavalent chromium at Qarmat Ali:

Q. You don't know what the dose is for any particular individual, correct?

A. That's correct.

Q. So how do you know it was overcome by the range of dose without knowing what the dose was?

A. Because their's was a big dose.

Q. You can't quantify that in any way, can you?

A. No.

Q. It's just big?

A. It's just big.[1]

Instead of calculating dose, Carson, in 2011, asked plaintiffs to try to remember eight years back, and tell him how much time they think they spent at Qarmat Ali, and Carson then recorded their reported hours as a "control number."[2] Carson admits he did *no analysis*

[1] X-1 (Carson depo) at 280:21 – 281:5 (all emphasis in this brief is added); *see also id.* at 146:25 – 148:3.
[2] *Id.* at 99:19 – 100:1.

whatsoever to come up with these control numbers,[3] and admits they are *not disclosed in his reports*.[4] Carson attempts to use this previously undisclosed "reported hours at Qarmat Ali" as both a proxy for "dose" and as a proxy for causation testimony – Carson says that plaintiffs who say they spent time at Qarmat Ali had injuries caused by sodium dichromate exposure. Carson admits he has no written work product, no mathematical calculations, and no other analysis to support his *ipse dixit* opinion.[5] Carson's opinions about hours at Qarmat Ali must be excluded.[6]

Further, plaintiffs' self-"reported hours at Qarmat Ali" is not a proxy for a medically and scientifically valid calculation of dose. Qarmat Ali was a large facility, with sodium dichromate on the ground only in certain locations, and varying (but uniformly low) concentrations of airborne chromium.[7] Yet, Carson does not consider at all *when* each plaintiff was at the plant, *where* each plaintiff was, *what* each plaintiff did, *what the weather was like*, or *what the chromium levels were*.[8]

Carson's co-plaintiff-experts uniformly *disagree* with Carson's unreliable and unscientific approach. Carson's co-expert, plaintiffs' air model expert Mr. Jim Tarr, testified that Carson's approach was wrong.

> Q. As you understand exposure and risk to hexavalent chromium, does it make any difference where a person was located, where they went at Qarmat Ali and for how long?

---

[3] *Id.* at 102:16-21.
[4] *Id.* at 99:19 – 100:5.
[5] *Id.* at 108:11-24.
[6] Carson's opinions based on his use of undisclosed "control numbers" supposedly reflecting hours at Qarmat Ali as self-reported by plaintiffs without validation should be excluded because they are unreliable, and also should be excluded under FRCP 26(a) and FRCP 37(c) because, as Carson admits, the "control numbers" and their meaning were not disclosed in his reports. *See, e.g.,* this Court's Dec. 30, 2011 Opinion and Order.
[7] X-4 (Beck declaration) at ¶ 7.
[8] X-1 (Carson depo) at 284:6-23, 285:16 – 286:9.

> A. With respect to air exposure at the site, my opinion is that it would have changed from place to place and it would have changed from time to time for anybody that was at the site.[9]

Carson's co-expert, plaintiffs' epidemiology expert Dr. Herman Gibb, also disagreed with Carson's hours-only approach.

> Q. All right. First is does it matter for your opinion how long they served at Qarmat Ali?
>
> A. I think it matters in the sense that if you're there longer, you've got – you have more exposure, but it also depends on – on what time you were there, where you were, was there a dust storm on that day, and I don't have that information for those individuals. So it's dependent on the time, but also dependence – also dependent on the kinds of exposure that occurred during the days that the individual was there.[10]

And, remarkably, Carson disagrees with himself. In Carson's months-tardy "supplemental" report in this case, Carson undermines his use of "hours at Qarmat Ali" as a proxy for dose. Carson criticized as "perplexing" and of "little probative value" what he calls CHPPM's "focus on the duration" without considering the "the intensity" of exposure.

> USACHPPM's focus on the duration of the Plaintiffs' exposure without adequately taking into account the intensity of the Plaintiffs' exposure is perplexing. *As the intensity of sodium dichromate exposure is at least as important as the duration of exposure – and some literature would suggest more important – a report that does not adequately assess the dose of exposure that the Plaintiffs received has little probative value.*[11]

Carson did exactly what he's criticizing! (He just did it less well, less timely, and less reliably.) Carson's own criticism, in his own words, shows that his undisclosed "reported hours at Qarmat Ali" control numbers are *not* a proxy for dose, "does *not* adequately assess the dose of exposure that the Plaintiffs received," and has "***little probative value***."

---

[9] X-2 (Tarr depo) at 166:12-19.
[10] X-3 (Gibb depo) at 93:12-22.
[11] X-5 at 28.

Carson also disagreed with his approach here (and recognized its legally fatal limitations) when he testified in the *Langford* arbitration, in which the same lawyers (Doyle Raizner LLP) sponsored and lost similar claims of former KBR employees due in part to their (and Carson's) inability to prove causation. **In the *Langford* arbitration, Carson admitted that "dose" is different from "duration," and admitted that he could *not* assess causation without a dose calculation.** In testifying about claimant Ed Blacke, Carson admitted that "*exposure dose is not known* and [plaintiff Blacke's] *exposure duration was a several days to a few weeks*. It is difficult to perform a risk assessment with such limited data."[12] Carson's clients (and plaintiffs' counsel) lost the *Langford* arbitration in part because, as the arbitrator found, "Claimants did not present sufficient proof of injury compensable under Texas law."[13]

Thus, Carson and plaintiffs have tried to change course here, and now want to opine on causation *without* analyzing dose – which is directly contrary to the testimony of plaintiffs' experts Gibb and Tarr, directly contrary to Carson's own prior sworn testimony, and directly contrary to Carson's own November 2011 report in this case. It doesn't get much more unreliable under *Daubert* . . . but it *does* get more unreliable with Carson, as discussed further below.

Black-letter law undermines Carson's opinions and plaintiffs' claims. In *Lusch v. Matrixx Initiatives, Inc.*, 2007 WL 2816203 (D. Or. Sep. 25, 2007) (Haggerty, J.), this district court illustrated the impact of an expert's failure to calculate dose, as Carson has failed to do here. Plaintiff Lusch alleged that her sense of smell was damaged by her use of Zicam, a homeopathic cold remedy. This district court excluded her causation expert's opinion "because there is no

[12] X-6, at 000003.
[13] X-18 to KBR's Motion for Summary Judgment re Causation [dkt. no. 204], at 6.

reasonable scientific evidence that Zicam is delivered in a dose sufficient enough to permanently damage olfactory epithelial tissue." *Id.* at *4. Similarly, in *Allen v. Pennsylvania Eng'g Corp.*, 102 F.3d 194, 199 (5th Cir. 1996), the Fifth Circuit persuasively explained that:

> Scientific knowledge of the harmful *level of exposure* to a chemical, plus knowledge that the plaintiff was *exposed to such quantities*, are *minimal facts* necessary to sustain the plaintiffs' burden in a toxic tort case.

And, in *Henricksen v. ConocoPhillips Co.*, 605 F. Supp. 2d 1142, 1157 (E.D. Wash. 2009), the court noted that "Several appellate courts have held that an expert who seeks to opine on specific causation *must pay careful attention to the dose-response relationship* (that is, the relationship in which a change in the *amount, intensity, or duration of exposure* to a chemical is associated with a change in risk of disease) and the amount of exposure the plaintiff allegedly suffered." The *Henrickson* court cautioned that "The boundaries of allowable expert testimony are not so wide as to permit an expert to testify as to specific causation without having any measurements of a plaintiff's exposure to the allegedly harmful substance." *Id.*

Carson knows full well that the law requires dose be calculated. His opinions have been excluded for near-identical failures to what he is trying here. In *Burleson v. Texas Dep't of Criminal Justice*, 393 F.3d 577 (5th Cir. 2004), the Fifth Circuit affirmed summary judgment against plaintiff Burleson, who claimed exposure to thoriated tungsten electrodes caused his throat and lung cancer. *Carson was plaintiff Burleson's expert.* The Fifth Circuit noted that "there is no direct evidence of the level of Mr. Burleson's exposure, if any, to radiation from the thoriated tungsten welding rods," *id.* at 584, rejected Carson's attempt to establish dose through his own *ipse dixit,* and affirmed the exclusion of his testimony under *Daubert*:

> Dr. Carson is even quoted affirming in his own scholarly papers that "an important step in studies relating to worker health and industrial exposure is the estimation of mean exposure level." Dr. Carson admits that the radiation dose a patient receives is critical to an evaluation

> of causation. He asserts that the lower the dose or exposure level, the lower the probability of causation. But even though Burleson's total dose potential or exposure level can be calculated, Dr. Carson has not determined the dose because he has "satisfied [him]self that it's sufficient."

Id. at 586-87.

Carson's dose-less causation opinion was unreliable and excluded in *Burleson*, and it is unreliable and should be excluded here.

B. Carson's Review of Medical Records Was Cursory and Haphazard.

Carson went ahead and opined in June 2011 that plaintiffs had numerous injuries due to chromium exposure *even though he had not reviewed all of the medical records.* Months later, plaintiffs served Carson's "supplemental report," in which Carson sought to opine on causation based, plaintiffs represented to this Court, on Carson's having reviewed all the medical records. (As this Court noted on pages 18-20 of its December 30, 2011 Order, plaintiffs and Carson failed to identify what records supposedly were used in what way for what plaintiffs.)

At his March 28, 2012 deposition less than a month ago, Carson admitted that *he still had not reviewed all of the medical records*, and still had not reviewed *any* of the plaintiffs' deposition testimony.[14]

In trying to save Carson's tardy November 2011 report from outright exclusion under FRCP 37, plaintiffs made multiple emphatic representations to this Court about the importance of the plaintiffs' medical records and Carson's need to review them. Yet, Carson testified at his deposition that when he received medical records, "***for the most part, I threw them in the corner.***"[15] Carson says he used the medical records only "to establish comfortable impressions"

[14] X-1 (Carson depo) at 74:3-14, 84:2-16.
[15] *Id.* at 13:17-20.

about plaintiffs' medical conditions,[16] and admits that his plaintiff summaries almost never referred to medical records.[17] Carson showed up at his deposition unprepared to testify specifically about any particular plaintiff's causation or injury. For example:

> Q. So, again, for Mr. Blain, can you tell me what remote exposure injury he experienced that you have concluded was specifically caused by his exposure to sodium dichromate by a standard of reasonable medical probability?
>
> A. ***Well, as I told you before, I didn't come here today prepared to discuss my opinion on any of these individual plaintiffs***. I understand that you're trying to understand what I meant in my report, but ***I'm just not able to address these individuals for you***.
>
> Q. So just so I'm clear, you cannot tell me for any particular plaintiff what the specific remote injury is you concluded to a degree of reasonable medical probability was specifically caused by their exposure to sodium dichromate at Qarmat Ali, as you sit her today, correct?
>
> A. ***I think we'll just have to leave that to a later discussion***.[18]

What "later discussion"? Under FRCP 26(a), Carson's opinions and the basis for them were required to be fully disclosed in his June 2011 report. But Carson did not make the required disclosure in his June 2011 report, did not do so in his tardy November 2011 report, and could not do so at his March 2012 deposition. Enough already.

In *Claar v. Burlington Northern R.R. Co.*, 29 F.3d 499, 502 (9th Cir. 1994), the Ninth Circuit affirmed the exclusion of two plaintiffs' experts who submitted their causation testimony "before reading the relevant literature." The Ninth Circuit's ruling squarely calls to mind the gross impropriety and unreliability that attends Carson's willingness to opine for plaintiffs in

---

[16] *Id.* at 14:3-10.
[17] *Id.* at 12:14-24.
[18] *Id.* at 205:3-20.

June 2011 *without* having done the work that plaintiffs told this Court was necessary – and, it's even worse that Carson *still* hasn't done the necessary work. The Ninth Circuit explained that

> scientists whose conviction about the ultimate conclusion of their research is so firm that they are willing to aver under oath that it is correct prior to performing the necessary validating tests could properly be viewed by the district court as lacking the objectivity that is the hallmark of the scientific method.

Id. at 503. The Ninth Circuit held that the district court properly excluded plaintiff's expert testimony because it was "lacking a basis in fact" because the expert rendered it without examining the plaintiff's medical records. *Id.* at 502 n.3.

In an opinion that echoes the Ninth Circuit's criticism and caution in *Claar*, the court in *Castellow v. Chevron USA*, 97 F. Supp. 2d 780, 786 (S.D. Tex. 2000), similarly excluded plaintiff's experts' opinions that plaintiff was injured by benzene exposure because the experts worked backwards from the conclusion: "From a review of all of the documents, the court is further convinced that the proposed expert witnesses began with the conclusion that Mr. Castellow's AML was caused by exposure to harmful levels of benzene. From that conclusion they have 'worked backward' to find medical and scientific support." That's exactly what Carson did here, and that's (at best) what Carson did with the medical records before he "threw them in the corner."[19] Instead of scientifically reviewing the medical records to try to diagnose injuries and causation, Carson reviewed them haphazardly, if at all, to get "comfortable" with his preordained "impressions" that injuries were associated with plaintiffs' unquantified sodium dichromate exposure.

Carson's "method" is not a scientific method. *See In re TMI Litig.*, 193 F.3d 613, 698 (3d Cir. 1999) (excluding medical testimony that was not based on complete review of medical

[19] *Id.* at 13:17-20.

records); *Cloud v. Pfizer Inc.*, 198 F. Supp. 2d 1118, 1135-36 (D. Az. 2001) (expressing "significant concerns" about the plaintiff's experts' specific causation testimony because the expert issued his opinion before reviewing medical records).

C. Carson Ignored the Plaintiffs' Deposition Testimony and Ignored Plaintiffs' Statements to CHPPM.

Carson did not validate any plaintiff's years-after-the-fact, post-litigation, self-reported remembrances. Carson admitted that he had *not* reviewed any depositions of any of the plaintiffs in this *Bixby* case – not a single one.[20] When confronted with examples of plaintiffs testifying that they never went to Qarmat Ali, despite apparently having told Carson that they had, Carson acknowledged that sometimes what the plaintiffs told him was not very reliable.[21]

Still, Carson did *absolutely nothing* to confirm the reliability of what plaintiffs told him eight years after-the-fact, and after they had filed this lawsuit. Carson *ignored* plaintiffs' deposition testimony . . . because that would be "torture" for him because it was too much work.

> Q. But you haven't looked at something as basic as whether or not they were at Qarmat Ali, have you?
>
> A. *There are many other things that I could do, too.* I could – I could try to obtain military records of deployments. I could try to – I could *torture* them and require them to answer my questions. But those things are not worthwhile and would not bear the kind of fruit that I'm interested in – in developing into an opinion.
>
> Q. So just let me make sure I understand, Dr. Carson. Are you now suggesting there's some comparison between looking at the sworn testimony of a plaintiff given four months before your report and torturing him?
>
> ***A. It would be torturing me.***

[20] *Id.* at 84:2-16. Carson says he reviewed the depositions of exactly *two* of the 130-plus plaintiffs in *McManaway*.
[21] *Id.* at 292:2-11.

Q. You view that as torture to go look at depositions?

A. To look at 170 of them? Yeah.[22]

Carson *ignored* the contemporaneous statements that plaintiffs gave to CHPPM back in 2003, well before this litigation and shortly after the conclusion of their deployments.[23] An overwhelming 87.5% of the Oregon guardsmen who responded to CHPPM's survey self-reported in October 2003 that they *did not* have on site symptoms, in response to CHPPM's question: "During the time at the site did you notice any increase in eye, nose, throat, lung or skin irritation above the normal problems encountered in the desert environment?"[24]

Carson did not familiarize himself with the relevant information in the record and, perhaps worse, when Carson was made aware of inconsistencies that undermined what plaintiffs told him, Carson just flat ignored the contrary evidence.

For example, Carson admitted that there "were some inconsistencies" between what plaintiffs said in their post-deployment health assessments (PDHAs) and what they told Carson seven to nine years later.[25] But Carson declined to change his opinion even when it was based on

---

[22] *Id.* at 295:18 – 296:11.
[23] *Id.* at 194:6-11.
[24] X-7 (CHPPM Report) at I-8; *see* Reply in Support of Defendants' FRCP 56(b) Motion for Summary Judgment re Causation (Dkt No. 230) at 14-15. Plaintiffs and Carson *have no answer* for the fact that 87.5% of the Oregon guardsmen themselves disavowed the symptoms and ailments now being claimed in this litigation, *have no answer* for USACHPPM's finding that "No significant potential for long-term adverse health effects were identified from being at the WTP based on the relatively brief exposure potential," *have no answer* for the finding that the "medical evaluations supported the low to negligible overall long-term health risk," and *have no answer* for the finding in 2008 that "the medical team at USACHPPM and the Army National Guard still considers it unlikely that any current symptoms or health problems could be related to this past exposure or that future problems from this exposure are expected." X-7 at ARMY 01382; X-11.
[25] X-1 (Carson depo) at 105:9-14.

information that was contradicted by what the plaintiffs told the Army much closer in time to their alleged exposure:

> Q. And you would have not have changed the control number or the exposure category for anybody based on their PDHA, correct?
>
> A. That's correct.[26]

Under *Daubert,* "Experts who do not familiarize themselves with the record" cannot present testimony which satisfies plaintiffs' evidentiary burden. *Monks v. General Elec. Co.*, 919 F.2d 1189, 1192 (6th Cir. 1990); *see also Cloud v. Pfizer Inc.*, 198 F. Supp. 2d 1118, 1135 (D. Az. 2001) ("Under *Daubert*, a court may consider whether an expert has reviewed relevant information before forming an opinion.").

Carson's opinions do not come close the meeting the legal standard for admissibility.

II.

Carson Performed No Analysis to Reach His Causation Opinion

Carson has not performed any reliable analysis to support his opinion that sodium dichromate exposure caused any plaintiff's purported medical conditions.

A. Carson Did Not Use Scientific Methods to Opine on Causation.

In *Claar v. Burlington Northern R.R. Co.*, 29 F.3d 499, 502 (9th Cir. 1994), the Ninth Circuit explained that, under *Daubert*, an expert's testimony is admissible *only if* the court determines that he "arrived at [his] conclusions using scientific methods and procedures, and that those conclusions were not mere subjective beliefs or unsupported speculation." An expert's causation testimony must be excluded if he cannot point to supportive peer-reviewed articles or some other "objective source" of support for his opinions, such as a learned treatise, the policy

[26] *Id.* at 107:14-17.

statement of a professional association, or a published article in a scientific journal. *Cabrera v. Cordis Corp.*, 134 F.3d 1418, 1423 (9th Cir. 1998); *Daubert*, 42 F.3d at 1319. An expert must "demonstrate that he followed a scientific method embraced by a least some other experts in the field." *Cabrera*, 134 F.3d at 1423.

In *Daubert v. Merrell Dow Pharms., Inc.*, 43 F.3d 1311, 1320-22 (9th Cir. 1995), the Ninth Circuit stressed the importance of epidemiological evidence to prove causation in a tort case. In *Hall v. Baxter Healthcare Corp.*, 947 F. Supp. 1387, 1403 (D. Or. 1996) (Jones, J.), this district court explained that "the existence or nonexistence of relevant epidemiology can be a significant factor in proving general causation in toxic tort cases." *See also Black v. Food Lion*, 171 F.3d 308, 314 (5th Cir. 1999) (plaintiffs must tie exposure to a medical condition "by some specific train of medical evidence"); *Brock v. Merrell Dow*, 874 F.2d 307, 311 (5th Cir. 1989) ("The most useful and conclusive type" of such evidence "is epidemiological studies.").

A toxic tort plaintiff's expert must *quantify* the relative risk arising from the alleged exposure. Thus, in *Cloud v. Pfizer, Inc.*, 198 F. Supp. 2d 1118 (D. Az. 2001), the court applied Ninth Circuit law and held that "In light of the Ninth Circuit's opinion in *Daubert II*, where it held that it was insufficient for the plaintiffs' experts to speak of possibilities without attempting to quantify those possibilities, Dr. Johnstone's testimony on general causation is insufficient and unreliable." A reliably comparable epidemiological study can support causation if it shows a "relative risk" of more than 2.0, such that it shows the exposure at issue more than ***doubles the risk*** of an illness. *Daubert v. Merrell Dow Pharms., Inc.*, 43 F.3d 1311, 1321 (9th Cir. 1995).

In *Hall v. Baxter Healthcare Corp.*, 947 F. Supp. 1387, 1403 (D. Or. 1996) (Jones, J.), this district court held that "In epidemiological terms, ***Oregon's standard of proof means that plaintiffs must be able to show a relative risk of greater than 2.0.***" The Ninth Circuit took it a

step further and explained that "A relative risk of less than two . . . actually **tends to *dis*prove legal causation**," even if shows an association between an exposure and a condition. *Daubert*, 43 F.3d at 1321 (emphasis in original). In this case, Carson has *not* quantified plaintiffs' relative risk, has *not* pointed to any comparable studies showing that plaintiffs' exposure carried a relative risk of more than 2.0 for any of the medical conditions alleged by plaintiffs, and has *not* himself opined that any plaintiff's risk increased by a factor of 2.0 or more.

Carson defers to plaintiffs' expert Dr. Herman Gibb, who relies on his materially different study of 2,357 workers at a Baltimore chromate factory.[27] Carson overlooks the fact that Gibb's study of Baltimore chromate workers found only that three conditions (ulcerated nasal septum, irritated skin, and perforated eardrum) were "significantly *associated with* ambient hexavalent chromium exposure" at the scientifically-measured concentrations present in the chromate plant, and that "lung cancer risk" was "elevated."[28] Gibb's Baltimore study addressed seven other symptoms as well – many of which are claimed by plaintiffs here – and Gibb found that he could *not* say there was a significant association between exposure and any of these seven conditions (irritated nasal septum, perforated nasal septum, bleeding nasal septum, irritated skin, dermatitis, burn, conjunctivitis).[29]

---

[27] The many material differences between Gibb's Baltimore study and this case are discussed in greater detail in the *Daubert* motion with respect to Gibb, including (1) the chromate workers in Gibb's Baltimore study worked around chromium for far longer than plaintiffs, (2) the chromate workers were exposed indoors, whereas plaintiffs claim they were exposed outdoors, (3) the chromate workers were exposed to *average* hexavalent chromium air concentrations 39 to 56 times the *maximum* concentrations modeled at Qarmat Ali, and (4) the chromate workers were exposed to *chromate acid mists*, whereas Plaintiffs allege that they were exposed to much-less-potent sodium dichromate *particulate matter*.

[28] X-8 at 129; X-9 at 124.

[29] X-3 (Gibb depo) at 67:25 – 68:16.

As a matter of law, Gibb's study "actually tends to *dis*prove legal causation,"*see Daubert*, 43 F.3d at 1321, and actually *rejects* causation for most of the conditions it addresses. *See General Elec. Co. v. Joiner*, 118 S. Ct. 512, 518 (1997) (epidemiological study was not evidence that PCB's cause cancer because the authors of the study were "unwilling to say that PCB exposure had caused cancer among the workers they examined").

Carson's testimony is even less well-supported than the excluded testimony of plaintiffs' experts in *Daubert* itself. Those experts "relied on animal studies, chemical structure analyses and epidemiological data." *Daubert*, 42 F.3d at 1319. The Ninth Circuit, in its opinion on remand from the Supreme Court, held that this was not enough:

> [T]hey neither explain the methodology the experts followed to reach their conclusions nor point to any external source to validate that methodology. We've been presented with only the experts' qualifications, their conclusions, and their assurances of reliability. Under *Daubert*, that's not enough.

Id.

Unlike the experts in *Daubert*, Carson has not even identified specific animal studies, chemical structure analyses, or epidemiological data that support any of the causation opinions in any of his reports. Carson's unsubstantiated say so is "not enough." Carson's "testimony therefore does not satisfy *Daubert* or Rule 702." *See Cabrera*, 134 F.3d at 1423.

B. Carson Did Not Link Exposure to Plaintiffs' *Specific* Conditions.

It would not be enough for Carson to draw a link between any hexavalent chromium exposure and an illness similar to that reported by a plaintiff. Carson has to have evidence linking *the specific type of hexavalent chromium exposure* with *the specific illness at issue*.

Carson knows that. Carson was plaintiff's expert in *Burleson v. Texas Dep't of of Criminal Justice*, 393 F.3d 577, 581 (5th Cir. 2004), and had his opinions excluded under

Daubert for the same types of failings with his opinions here. In *Burleson,* Carson relied on studies showing that thorium dioxide in a medical imaging dye called Thorotrast caused tumors, but the studies were not sufficiently specific to Burleson's situation and did not reliably support "a correlation between the causative agent and the type of cancer experienced by the plaintiff." *Burleson*, 393 F.3d at 582-84. Also similar to his failings here, Carson could not show that Burleson received a radiation dose comparable to that in the Thorotrast studies. *Id.* at 586.

In *Avila v. Willits Envt'l Remediation Trust*, 633 F.3d 828, 840 (9th Cir. 2011), the Ninth Circuit, like the Fifth Circuit, stressed the importance of expert testimony offering "*specifics* to show a plausible link between disease and exposure or between exposure and onset of disease." The Ninth Circuit explained that the expert testimony must specifically connect plaintiffs' specific injuries with the chemical or mix of chemicals to which plaintiffs were exposed. *Id.* Carson has *not* done that here, and neither has Gibb or any other plaintiff expert.

The Ninth Circuit's decision in *Lust v. Merrell Dow Pharms., Inc.*, 89 F.3d 594 (9th Cir. 1996), also demonstrates the unreliability of Carson's work here. In *Lust,* plaintiff alleged his birth defect, hemifacial microsomia, was caused by his mother's ingestion of a drug called Clomid. Plaintiff's expert, Dr. Done, opined that Clomid caused Lust's hemifacial microsomia because epidemiological studies had linked Clomid to other birth defects, animal studies had found Clomid to cause birth defects, and other studies had reported Clomid to cause mutations in humans. *Lust*, 89 F.3d at 596. The Ninth Circuit noted that "Done's chief premise was that if there is evidence of a positive association between an agent and a wide variety of birth defects in human epidemiological and animal studies, then the agent substantially increases the probability of all types of birth defects." *Id.* at 597. The Ninth Circuit affirmed the district court's exclusion of plaintiff's expert's testimony because, the court explained, the expert did not point to

objective support for his premise and his testimony did not reliably link Clomid exposure to the occurrence of hemifacial microsomia in particular. *Id.* at 597-98; *see also Sanderson v. International Flavors & Fragrances, Inc.*, 950 F. Supp. 981, 998 (C.D. Cal. 1996) ("Thrasher's reliance on chemicals other than those which plaintiff alleges injured her and on the ability of fragrance products to cause injuries other than those from which plaintiff claims to suffer in order to conclude that fragrance products caused plaintiff's injuries fails *Daubert*'s reliability standard.")

Carson impermissibly tried to avoid the legal requirement to link an exposure to a *specific* illness by opining that plaintiffs had such vague conditions as "exposure-related illness to the lower and upper respiratory system," "illness of the gastrointestinal system," or "injury to the skin and integument." These descriptors each encompass hundreds of different conditions. And the case law is clear that Carson has to link sodium dichromate exposure with plaintiffs' *specific* conditions. As a matter of law, Carson cannot skirt the requirements of the law by merely opining that sodium dichromate exposure is linked to skin, respiratory, and gastrointestinal illnesses. *See Casey v. Ohio Medical Prods.*, 877 F. Supp. 1380, 1385 (N.D. Cal. 1995) (considering a plaintiff estate's claim that decedent's use of halodane caused his chronic active hepatitis, and rejecting plaintiffs' expert's opinion because it was premised on reports of halodane causing "*some* liver disease, not necessarily chronic active hepatitis.").

C. Carson Did Not Link Plaintiffs' *Specific* Exposure to Their Conditions

In *Schudel v. General Elec. Co.*, 120 F.3d 991 (9th Cir. 1997), the Ninth Circuit stressed the importance of epidemiological evidence linking the alleged disease with the *specific chemical* at the *specific concentrations* over the *specific time period* in issue. In that case, plaintiffs alleged that they developed various neuorological and respiratory problems from

exposure to two cleaning solvents, TCA and Perc. *Id.* at 993. Plaintiff Williams' expert's causation opinion was "based on extrapolation from studies that: (1) involved organic solvents other than TCA or Perc; and (2) examined long-term exposure at relatively low chemical concentrations or short-term exposure at very high concentrations, rather than the short-term, moderate level exposure sustained by Williams." *Id.* at 997. The Ninth Circuit held that it was error to admit this testimony:

> Williams' exposure was neither long enough nor intense enough to fall within the ranges described in the studies Dr. Morton relied upon. Extrapolation was necessary to make the studies relevant, and there was no showing that the necessary extrapolation was scientifically acceptable.

Id.

Similarly, in *Lusch v. Matrixx Initiatives, Inc.*, 2007 WL 2816203 (D. Or. Sep. 25, 2007) (Haggerty, J.), this district court considered plaintiffs' expert Dr. Janek attempt to use studies involving zinc sulfate to show that zinc gluconate caused the plaintiff's loss of smell. The court rejected this testimony because "Dr. Janek's analogy between zinc sulfate and zinc gluconate is an unjustifiable extrapolation from an accepted premise to an unfounded conclusion." *Lusch*, 2007 WL 2816203, at *4; *see also Henricksen v. ConocoPhillips Co.*, 605 F. Supp. 2d 1142, 1156 (E.D. Wash. 2009) ("the court can not simply presume that the qualitative toxic and carcinogenic effects of benzene from *any source* are the same"); *Newkirk v. Conagra Foods, Inc.*, 727 F. Supp. 2d 1006, 1017 (E.D. Wash. 2010) ("There is nothing to support Dr. Egilman's conclusion that is at the heart of this case: that the vapors emitted from a microwave popcorn bag contain the same proportion of chemicals or that all of the substances in the two instances are identical."), *aff'd,* 438 Fed. Appx. 607 (9th Cir. 2011); *Hall v. Baxter Healthcare Corp.*, 947 F. Supp. 1387, 1411 (D. Or. 1996) ("studies based on crystalline silica cannot support the testimony

of plaintiffs' experts because plaintiffs make no showing that silicone breast implants are associated with the presence of crystalline silica in women").

Carson admitted that he has not compared plaintiffs' exposures *with* the exposures of the subjects of epidemiological studies.[30] If Carson had made the comparison, he would have found that plaintiffs are not "*substantially similar*" to the chromate workers in Gibb's Baltimore study.

- The chromate workers in Gibb's study worked in the factory full-time for an average of 3.1 years. The plaintiffs here had a much shorter exposure of hours, days, or weeks.[31]

- The chromate workers were exposed to *average* hexavalent chromium air concentrations 39 to 56 times the *maximum* concentrations modeled at Qarmat Ali.[32]

- The chromate workers worked in, around and with chromium. Plaintiffs did not work in, around or with chromium; they escorted to and from Kuwait and patrolled the area.

- The chromate workers' exposures took place while working inside factory buildings. Plaintiffs spent time outdoors where, plaintiffs say, they were open to the atmosphere. (Incidentally, Carson admitted he is not aware of any studies finding health effects from outdoor hexavalent chromium exposure.)[33]

- The plaintiffs here had to work in the extreme heat and dust of the Iraq desert during wartime – a situation that has been proven to cause high percentages of conditions like irritated skin and respiratory effects.[34]

- The chromate workers were exposed to *chromate acid mists*. Plaintiffs allege that they were exposed to much-less-potent sodium dichromate *particulate matter*.[35] Toxicological evidence regarding one chemical formulation (e.g. mists) cannot support an inference that a related but different chemical (e.g. particulate) causes disease. *See Hall v. Baxter Healthcare Corp.*, 947 F. Supp. 1387, 1412 (D. Or. 1996).

---

[30] X-1 (Carson depo) at 271:24 – 272:23.
[31] X-4 (Beck declaration) at ¶ 8.
[32] *Id.* at ¶ 9.
[33] X-1 (Carson depo) at 168:7-12.
[34] X-10 (Goodman declaration) at ¶¶ 5-21 .
[35] X-4 (Beck declaration) at ¶ 10.

- Gibb's study does not provide reliable evidence of causation for the plaintiffs here who claim their conditions lasted years after their exposure ended or for those who claim their conditions first appeared years after the exposure ended. Plaintiffs must prove "that the *timing of the onset of injury* was consistent with that experienced by those in the study." *Merrell Dow Pharms. v. Havner*, 953 S.W.2d 706, 720 (Tex. 1997).

The court's decision in *Whitlock v. Pepsi Americas*, 2011 WL 2746494 (N.D. Cal. July 13, 2011), illustrates the limitations of relying on Gibb's Baltimore study without thoughtfully (or at all) comparing the facts and circumstances. In that case, plaintiff Whitlock alleged that hexavalent chromium exposure caused her gastrointestinal disease and poor dentition. *Whitlock*, 2011 WL 2746494, at *1. Her expert, Dr. O'Connor, relied on Gibb's chromate worker study to support causation, but this testimony was not reliable: "even assuming that Dr. O'Connor's calculations are correct, according to Dr. O'Connor, the Gibb study examined workers' 'irritated nasal septum,' which is not an injury claimed by Ms. Wakeland." *Id.* at *10. Dr. O'Connor also relied on another occupational study of chrome platers exposed to chromic acid. *Id.* at *9. The court found this testimony was unreliable because Whitlock was exposed to a different chemical containing hexavalent chromium, and her exposure was of a different intensity than that experienced by the chrome platers. *Id.*

As discussed above, plaintiffs here allege they were exposed to sodium dichromate (which is different from the hexavalent chromium at issue in Gibb's Baltimore study), through inhalation of particulate matter (which is different from the chromate acid mists in Gibb's Baltimore study), at an unidentified intensity (none of plaintiffs experts even tried to quantify it), and in an unidentified dose (compared to carefully measured doses in Gibb's Baltimore study). Carson did not consider any of these differences.

D. Carson Has Not Conducted a Reliable Differential Diagnosis.

In *Hall v. Baxter Healthcare Corp.*, 947 F. Supp. 1387, 1414 (D. Or. 1996), this district court held that, "General causation issues aside, an expert *must rule out other potential causes* of the patient's condition in order for differential diagnosis testimony to be admissible. . . . Dr. Bennett has not testified as to *how* he eliminated other potential causes of Ms. Hall's disease." *See also Cotroneo v. Shaw Env't & Infrastructure, Inc.*, 639 F.3d 186, 193 (5th Cir. 2011) ("If there are other plausible causes of the injury or condition that could be negated, the plaintiff *must offer evidence excluding those causes with reasonable certainty.*").

CHPPM found, and Carson admits, that there are many of other potential causes of plaintiffs' purported ailments. In fact, Carson admitted there aren't *any* symptoms at all that are unique to hexavalent chromium exposure and, hence, without other potential causes:

> Q. Are you aware of any symptoms that are unique that may be caused by exposure to hexavalent chromium and not known to be caused by exposures to anything else or any other possible cause?
>
> A. There aren't any.[36]

To be sure, Carson *says* he did a "differential diagnosis," but it's truly impossible to tell what or "how" he did it from reviewing his report:

> Q. Okay. And – well, if, for example, someone says, I have nosebleeds, how do we understand what other possible factors you considered for them, if any? Is there a way for us to look at that other than asking you?
>
> A. Not other than asking me.
>
> Q. Okay.
>
> A. But from what you know about the differential diagnosis process, you know that is the process, and that I considered other competing explanations for these symptoms, primarily.[37]

[36] X-1 (Carson depo) at 144:14-18.

Yet, again, Carson's admission shows that his opinions and the basis for them (this time with respect to differential diagnosis) are not disclosed in his reports in this case, cannot be ascertained from his reports, and the only way to know what his basis is or what he did is "asking me." That violates FRCP 26(a) and merits exclusion under FRCP 37(c) as well as exclusion under *Daubert.*

In *Tamraz v. Lincoln Elec. Co.*, 620 F.3d 665, 674 (6th Cir. 2010) , the Sixth Circuit discussed the minimum requirement of a differential diagnosis:

> A differential diagnosis seeks to identify the disease causing a patient's symptoms by ruling in all possible diseases and ruling out alternative diseases until (if all goes well) one arrives at the most likely cause. . . . Calling something a "differential diagnosis" or "differential etiology" does not by itself answer the reliability question but prompts three more: (1) Did the expert make an accurate diagnosis of the nature of the disease? (2) Did the expert reliably rule in the possible causes of it? (3) Did the expert reliably rule out the rejected causes? ***If the court answers "no" to any of these questions, the court must exclude the ultimate conclusion reached.***

The answers to items 2 and 3 demonstrably are "no" here (and the answer to item 1 almost certainly is "no" as well). Carson did not make a serious effort to "reliably rule in" hexavalent chromium exposure. Carson did not calculate dose, did not estimate dose, did not distinguish among plaintiffs, did not account for their locations at the site, did not account for variations in weather conditions, did not reliably address general causation, and did not follow anything resembling the scientific method.

Carson *says* he "ruled out" causes other than hexavalent chromium, but his report does not provide the basis for that, and the work Carson orally says he did hardly scratches the surface of potential causes – Carson certainly did not "reliably rule out" other causes. The only

---

[37] *Id.* at 247:11-24.

alternative cause Carson says he considered for all plaintiffs was service in a desert environment, and Carson simply rules that out with his own say-so, and without explanation, without analysis, without consideration of CHPMM's directly contrary conclusions based on its contemporaneous 2003 study, and, perhaps most incredibly, without any consideration at all of the multiple studies of deployed U.S. soldiers showing that *service in Iraq and the Middle East correlates with skin and respiratory injuries without regard to spending time at Qarmat Ali.*[38] *See Pluck v. BP Oil Pipeline Co.*, 640 F.3d 671, 678 (6th Cir. 2011) (need to consider "*all* relevant potential causes of the symptoms").

In his tardy report, Carson only purports to consider other alternative causes for 10 of the 35 plaintiffs addressed in the report.[39] Even as to those, Carson simply pays lip service to alternative causes, does not rule them out to a reasonable certainty, and offers only conclusory opinions based on methodology, if any, that is not ascertainable.[40] For example, Carson says that while a plaintiff's "smoking doubtless plays a part in his lower respiratory system illness. . . . Cr(VI) exposure contributes to and worses the damage."[41] Why? What's the basis for that? Where's the analysis? What's the explanation? What citations to authoritative literature support that opinion? Carson's report is mysteriously (and impermissibly) silent on these critical points. *See Hall v. Baxter Healthcare Corp.*, 947 F. Supp. 1387, 1414 (D. Or. 1996) ("expert *must rule out other potential causes* of the patient's condition in order for differential diagnosis testimony to be admissible. . . . Dr. Bennett has not testified as to *how* he eliminated other potential causes

[38] X-10 (Goodman declaration) at ¶¶ 5-21.
[39] X-4 (Beck declaration) at ¶ 15.
[40] X-4 (Beck declaration) at ¶ 13.
[41] X-5 at 18.

of Ms. Hall's disease."). All we have is Carson's say-so. Carson did not provide any of the legally required validation that his conclusions were derived by the scientific method.

In *Raynor v. Merrell Dow Pharms. Inc.*, 104 F.3d 1371, 1377 (D.C. Cir. 1997), the D.C. Circuit affirmed defendants' judgment n.o.v. and rejected plaintiff's expert testimony because, while the expert said he had ruled out causes of plaintiff's birth defects other than Bendectin exposure, "Dr. Thoman's purported elimination of alternative explanations was, however, exceedingly *vague*," and his "methodology remains *obscure*." *Id.* at 1376 & n.2. Thoman relied on a broader set of inputs than Carson used – family history, parental background, genetic history, physical examination, pregnancy history, and toxicology – but the D.C. Circuit held Thoman's testimony was unreliable because he "provided 'no tested or testable theory to *explain how*, from this limited information, he was able to eliminate all other potential causes of birth defects.'" *Id.* at 1375-76.

While Dr. Thoman at least had an "obscure" methodology, Carson has none. Carson does not attempt to explain how he selected only a handful of alternative causes, and does not explain how he went about ruling them out. As did the D.C. Circuit in *Raynor,* this district court in *Hall* also requires a valid explanation of "*how* he eliminated other potential causes." 947 F. Supp. at 1414. There is no "how" with Carson.

The law in the Ninth Circuit is clear on this point – and it clearly requires the exclusion of Carson's opinions. In *Avila v. Willits Envt'l Remediation Trust*, 633 F.3d 828 (9th Cir. 2011), the Ninth Circuit affirmed the exclusion of the testimony of an expert Dr. Levin for reasons directly applicable to Carson's work here: "Nor did Levin's report 'consider' confounding factors; it just dismissed them." *Id.* at 840. In *Daubert v. Merrell Down Pharms., Inc.*, 43 F.3d 1311, 1319 (9th Cir. 1995), the Ninth Circuit found that plaintiffs' expert's causation testimony

was inadmissible in part because he "offers no tested or testable theory to explain how, from this limited information [examination of plaintiffs' medical records], he was able to eliminate all other potential causes of birth defects, nor does he explain how he alone can state as a fact that Bendectin caused plaintiffs' injuries."

Carson did not conduct a real differential diagnosis. Carson failed to "reliably rule in" each (or any) particular plaintiff's alleged but entirely unquantified exposure to particulate matter supposedly containing some unquantified level of hexavalent chromium, *failed* to identify and "reliably rule out" the many potential alternative causes, and for the many other reasons discussed, Carson's opinions in this case unreliable and must be excluded as a matter of law.

Conclusion

This Court should exclude Carson's causation opinions under *Daubert.*

Respectfully submitted,

/s/ Geoffrey L. Harrison
Geoffrey L. Harrison (Admitted *Pro Hac Vice*)
Texas State Bar No. 00785947
S.D. Admissions No. 16690
gharrison@susmangodfrey.com
SUSMAN GODFREY L.L.P.
1000 Louisiana Street, Suite 5100
Houston, Texas 77002-5096
Telephone: (713) 653-7807
Facsimile: (713) 654-6666

Attorney-in-Charge for Defendants KBR, Inc., Kellogg Brown & Root Services, Inc., KBR Technical Services, Inc., Overseas Administration Services, Ltd., and Service Employees International, Inc.

Of Counsel:

Jeffrey S. Eden
jeden@schwabe.com
SCHWABE, WILLIAMSON &WYATT
1211 SW 5th Avenue, Suite 1900
Portland, Oregon 97204
Telephone: (503) 796-2837
Facsimile: (503) 796-2900

Vineet Bhatia
Texas State Bar No. 00795976
S.D. Admissions No. 20187
vbhatia@susmangodfrey.com
J. Hoke Peacock III (Admitted *Pro Hac Vice*)
Texas State Bar No. 15673980
S.D. Admissions No. 13529
tpeacock@susmangodfrey.com
Johnny W. Carter (Admitted *Pro Hac Vice*)
State Bar No. 00796312
S.D. Admissions No. 21988
jcarter@susmangodfrey.com
Chanler A. Langham (Admitted *Pro Hac Vice*)
Texas State Bar No. 24053314
S.D. Admissions No. 659756
clangham@susmangodfrey.com
SUSMAN GODFREY L.L.P.
1000 Louisiana Street, Suite 5100
Houston, Texas 77002-5096
Telephone: (713) 651-9366
Facsimile: (713) 654-6666

Jordan Connors (Admitted *Pro Hac Vice*)
Washington State Bar No. 416499
jconnors@susmangodfrey.com
SUSMAN GODFREY L.L.P.
1201 Third Avenue
Seattle, Washington 98101
Telephone: (206) 516-3880
Facsimile: (206) 516-3883

Raymond B. Biagini (Admitted *pro hac vice*)
rbiagini@mckennalong.com
Kurt J. Hamrock
khamrock@mckennalong.com
MCKENNA LONG & ALDRIDGE LLP
1900 K Street NW, Suite 100
Washington, D.C. 20006-11808
Telephone: (202) 496-7500
Facsimile: (202) 496-7756

Certificate of Compliance

This brief complies with the applicable word-count limitation under LR 7-2(b), 26-3(b), 54-1(c), or 54-3(e) because it contains 7557 words, including headings, footnotes, and quotations, but excluding the caption, table of contents, table of authorities, signature block, and any certificates of counsel.

/s/ Geoffrey L. Harrison
Geoffrey L. Harrison